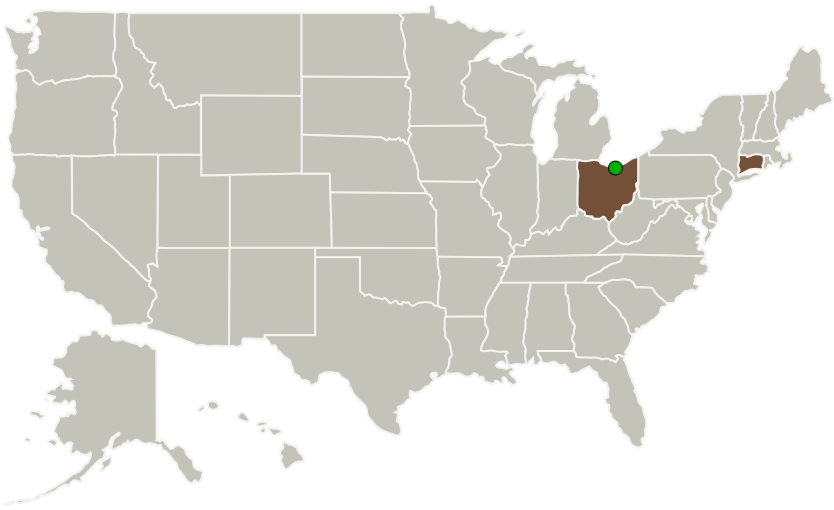
Rotorcraft Diagnostics, Phase I

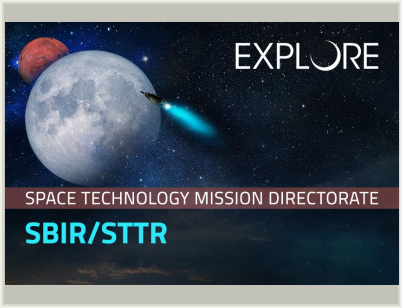
Completed Technology Project (2010 - 2010)

Project Introduction

A versatile self-sustained health management (HM) solution comprising of lightweight, power efficient, portable hardware and highly accurate analytic and reasoning software is the envisioned outcome of this effort. The HM solution will be equipped with customizable feature extraction, fault detection, identification and classification algorithms. A built in powerful reasoner and capability of porting dependency models and user defined analytic algorithms make the solution usable in a variety of HM application. Especially, the solution is suitable for on-component embedding in rotorcraft and fixed wing aircraft. Capability of storing data and HM decisions and communicating with a variety of data/communication bus systems empowers such solutions to function in a collaborative manner and attain vehicle level health management capability. Integration of the dependency models embedded in the individual HM solutions on a vehicle computer, and supplying it with component level observations and the HM outcomes achieves the vehicle level HM. The same reasoning and analytic algorithms can be reused here. Combining the vehicle and system level observation HM outcome and usage information can facilitate fleet level CBM through this effort.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Qualtech Systems, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Qualtech Systems, Inc.	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB)	Rocky Hill, Connecticut
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
Connecticut	Ohio

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139301)*

Project Management

Program Director:
Jason L Kessler

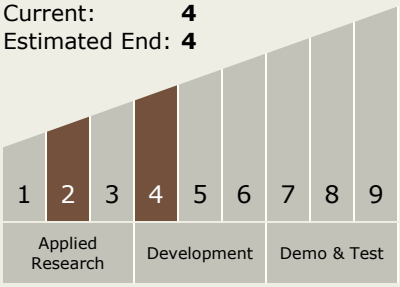
Program Manager:
Carlos Torrez

Principal Investigator:
Deepak Haste

Co-Investigator:
Deepak Haste

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.7 Test Instruments and Sensors

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Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System